

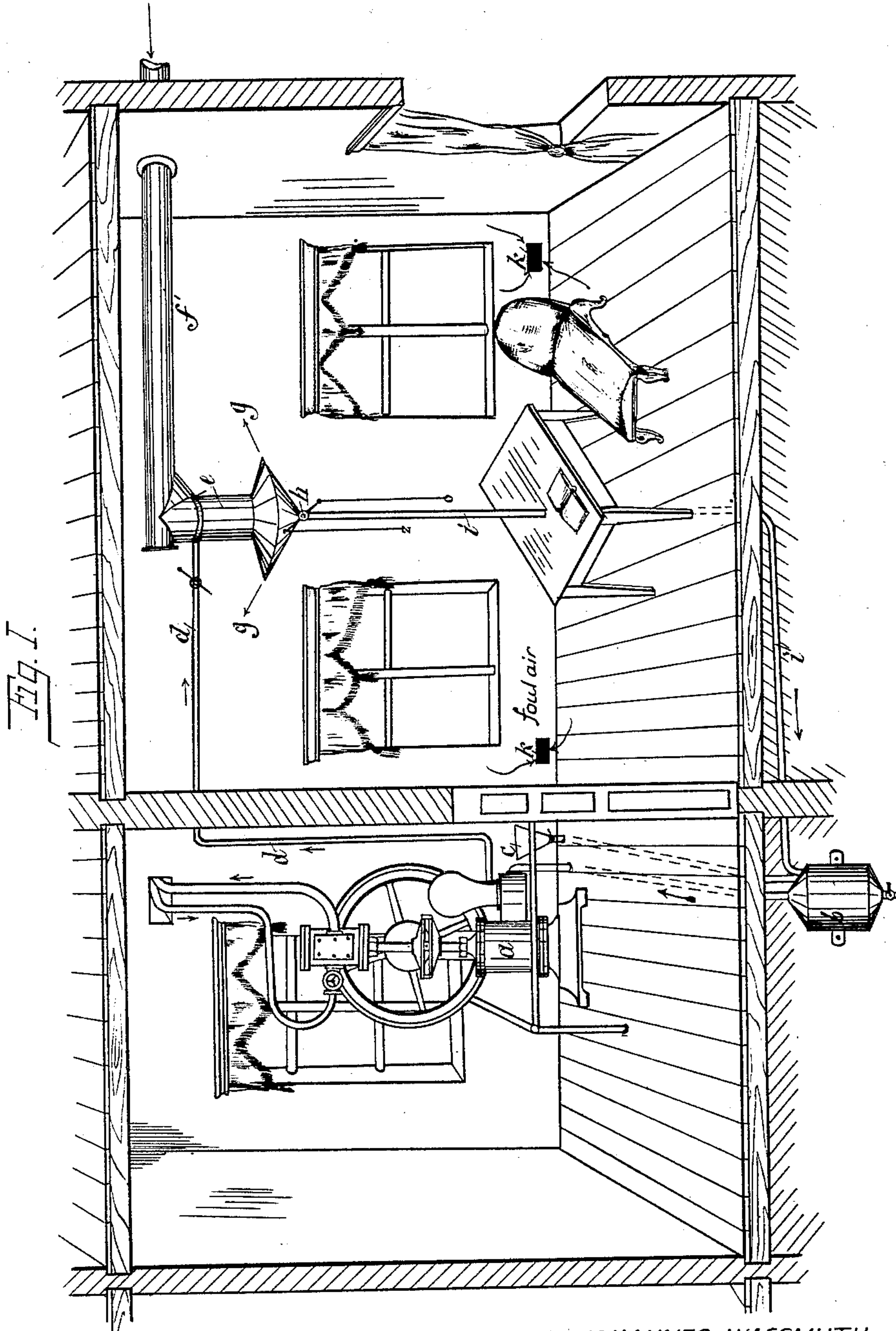
(No Model.)

3 Sheets—Sheet 1.

A. J. WASSMUTH.
INHALING APPARATUS.

No. 462,608.

Patented Nov. 3, 1891.



Witnesses:

James F. Duhamel
C. B. Bull.

ALFRED JOHANNES WASSMUTH,
Inventor,

By Dodge Sons,
Attys.

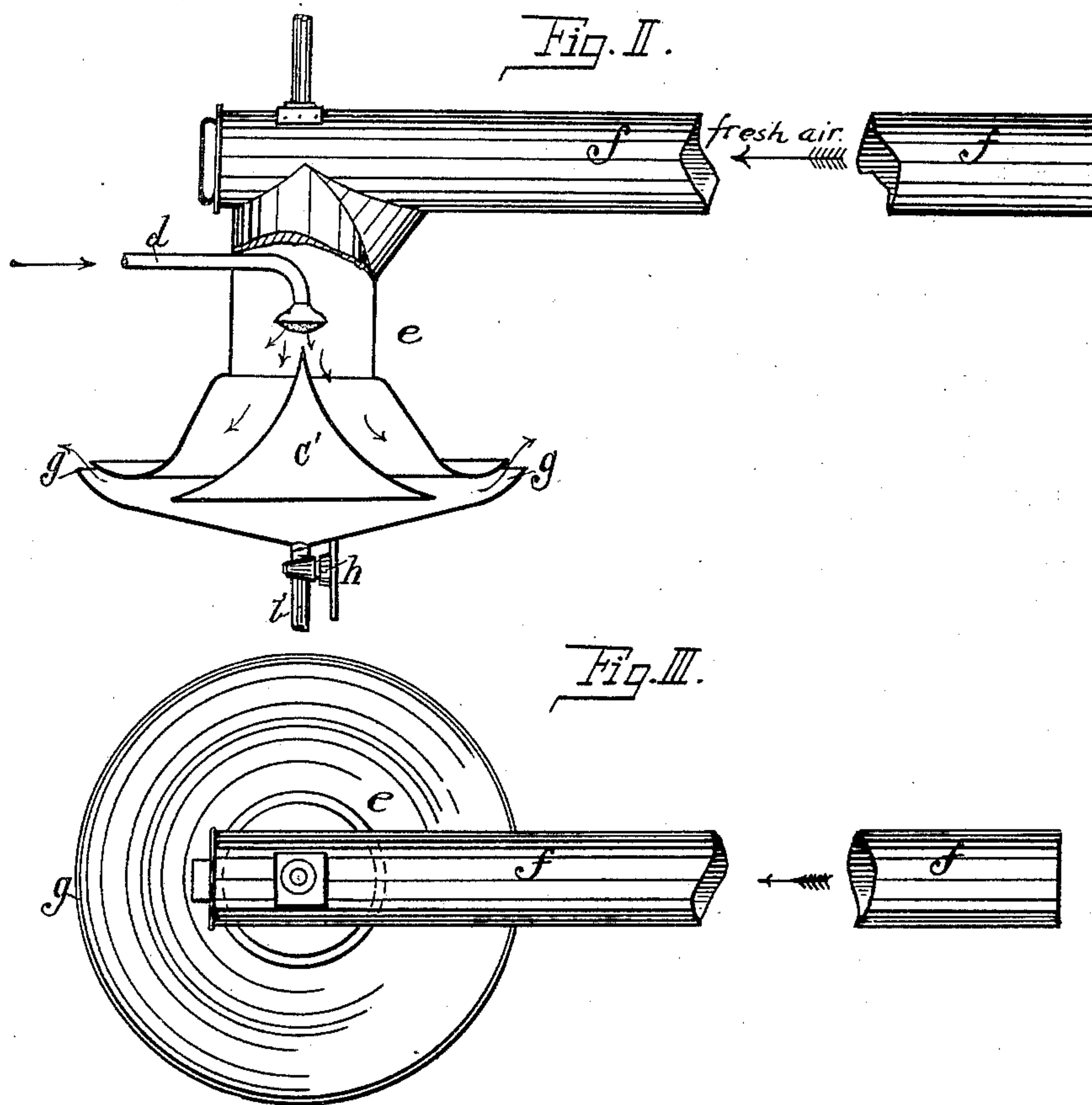
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Patented Nov. 3, 1891.



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James F. Duhamel
Chas. B. Bull.

ALFRED JOHANNES WASSMUTH,
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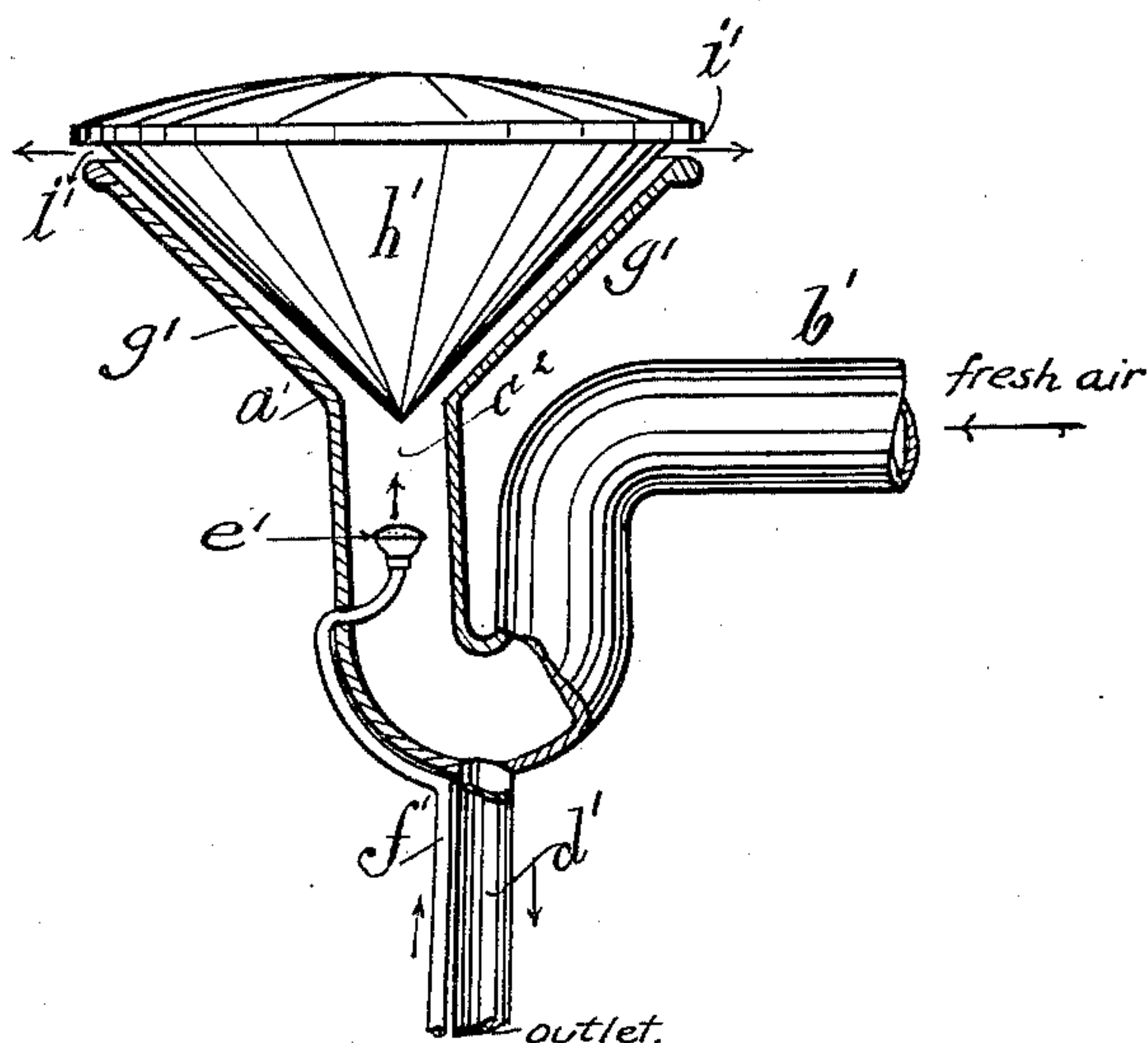
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Fig. N.



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UNITED STATES PATENT OFFICE,

ALFRED JOHANNES WASSMUTH, OF BARMEN, GERMANY.

INHALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 462,608, dated November 3, 1891.

Application filed July 23, 1891. Serial No. 400,449. (No model.) Patented in France July 10, 1889, No. 199,493; in Belgium July 11, 1889, No. 86,952, and in England September 16, 1889, No. 14,562.

To all whom it may concern:

Be it known that I, ALFRED JOHANNES WASSMUTH, of Barmen, in the Kingdom of Prussia and German Empire, have invented
5 a new and useful Inhaling Apparatus, (for which I have received Letters Patent in France, No. 199,493, dated July 10, 1889; in Belgium, No. 86,952, dated July 11, 1889, and in England, No. 14,562, dated September 16,
10 1889,) of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a new or improved inhaling apparatus in which the pharmaceutical solution used joins the air of the room
15 in such a way that while the air is thoroughly impregnated no visible precipitates appear.

The method of working the apparatus is as follows: The pharmaceutical solution is forced
20 by means of a pump into the inhaling apparatus, which is provided with a diffuser or spraying device, and it issues from the apparatus in the form of a fine cold vapor, which is discharged in the room along with atmospheric air drawn in through a pipe connected
25 with the diffusing device. The fresh air becomes intimately mixed with the medicated vapor. The principal novelty of the arrangement is that the air which joins the pharmaceutical solution is taken from the atmosphere instead of from the room in which the solution is being diffused. Openings are
30 preferably made through the lower part of the walls or the floor of the room in which the inhaling apparatus is placed, so that when the fresh air, which is impregnated with pharmaceutical solution and is heavier than the air being used in the room, is admitted it will
35 press the vitiated air out through the openings in the floor or walls. The inhaling apparatus is so constructed that any liquid not quite vaporized will be conducted back again into the receptacle of the pharmaceutical solution.

40 The apparatuses used are represented on the drawings annexed, whereon—

Figure 1 shows the arrangement of the apparatus as used for inhaling. Figs. 2 and 3
45 show in part section and plan the interior construction of the apparatus for diffusing

the medicated vapor. Fig. 4 shows in part section a modified construction of the same.

The arrangement for inhaling, as represented at Fig. 1, is as follows: A pump *a*,
5 moved by any mechanical power, forces the pharmaceutical solution under a pressure of from five to seven atmospheres out of the vessel *b*, which is filled through the funnel *c*,
10 through the pipe *d* to the diffusing or dissipating apparatus *e*. The solution issuing through the spraying-nozzle *d'*, Fig. 2, impinges against
15 the apex of the cone *c'* and is forced outward toward the space or opening *g* around the diffuser, from whence it issues in the form of a cold vapor. At the same time a constant
20 stream of fresh air is inducted through the pipe *f* from the outer atmosphere. This inducted air combines and issues along with the medicated vapor. The quantity of fresh
25 air admitted to the room in this manner would be seven hundred to eight hundred cubic meters per hour. The vitiated air expired by the
30 patient will be pressed downward and out through the holes *h* in the walls. In this way the air will be renewed ten to fifteen times a day, according to the size of the room, and this
35 renewal will take place without perceptible draft. As there is such a constant and thorough renewal of air, any number of patients may be allowed to inhale at the same time in the
40 room without the air being seriously deteriorated. The patients inhale the impregnated air quite naturally. They may sit, lie, walk about, or even sleep while the pharmaceutical
45 solution along with the air will enter their lungs. Any condensed or superfluous solution collects in the bottom *h* of the diffuser *e* and flows through the pipe *i* back to the vessel *b*.

The inhaling apparatus used in Fig. 1 is shown on an enlarged scale at Figs. 2 and 3,
50 where, as before described, the pharmaceutical solution is forced through the pipe *d* to the diffusing apparatus, where it impinges against the conical diffuser *c'* and is divided into minute particles, which combine and
55 issue with the atmospheric air at *g*. The pipe *f* conducts the air from outside the building into the case of the distributor or diffuser.

The apparatus represented at Figs. 2 and 3

may be modified, as shown at Fig. 4. In this view Fig. 4 the dissipating apparatus consists of a case *a'*, made of any material, and which is connected with the outside air by the pipe *b'*. Between the case *a'* and the pipe *b'* there is a knee or bend, the object of which is to collect any superfluous or condensed liquid and allow it to pass back through the pipe *d'* to the forcing-pump. The spray-nozzle *e'*, which is connected with the force-pump by the pipe *f'*, enters the vertical part *c'* of the pipe above the bend. When using the apparatus the liquid is forced under considerable pressure along the pipe *f'* in the direction of the arrow and through the spray-nozzle *e'*. As it issues from nozzle *e'*, it strikes against the walls of the funnel *g'*, and the conical cap *h'*, driving at the same time the fresh air through the funnel *g'*. The large particles of the solution drop down to the bottom of the siphon-bend, so as to be carried away by the pipe *d'* back to the force-pump, while the fine particles of the solution are forced out of the apparatus at *i'* by the upward rush of air. After the apparatus has been started, the room is soon filled with the vapor, and the air in the room becomes like mist. The solution combines with the air so thoroughly that no perceptible precipitation takes place. When used for disinfecting purposes, the apparatus gives these advan-

tages, viz., it delivers the disinfectant in a very finely-dried state and distributes it into every corner of the room.

Of course no broad claim is made by me to the medication of air *per se*, as this has long been practiced.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In apparatus for the distribution of pharmaceutical vapors, the combination, with an air-forcing device *a*, of a reservoir *b*, containing the solution to be distributed and connected with the device *a*, a diffuser *e*, connected by a pipe *d* with the air-forcing device, and a fresh-air-supply pipe *f*, connected with the diffuser, all substantially as shown and described.

2. In combination with air-pump *a* and reservoir *b*, the diffuser *e*, connected with the pump, a fresh-air-supply pipe *f*, also connected with the diffuser, and a pipe *i*, extending from the diffuser back to the reservoir *b*, substantially as and for the purpose explained.

In witness whereof I have hereunto set my hand in presence of two witnesses.

ALFRED JOHANNES WASSMUTH.

Witnesses:

WM. ESSMEIN,
RUDOLPH FRICKE.